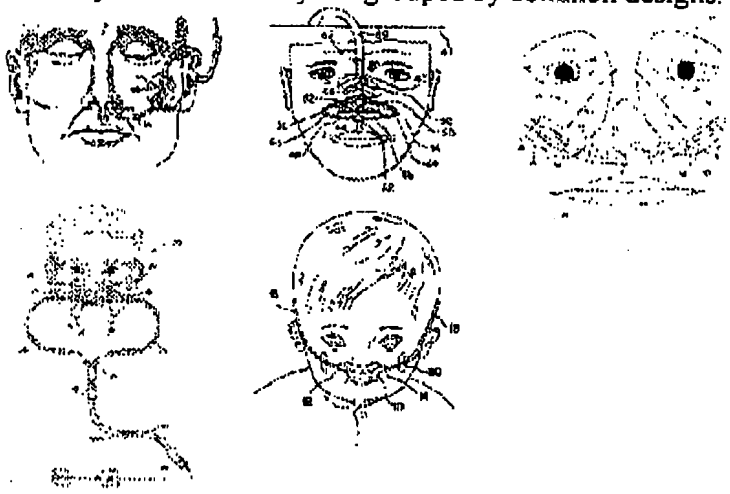
Appendix

These are examples of the many devices that attempt to solve cannula problems

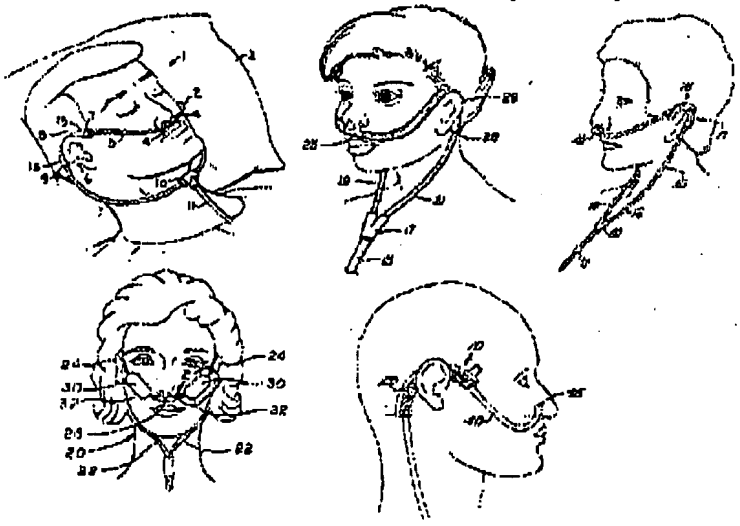
Patent drawings

Below is an assortment of devices intended to rectify some of the areas of discomfort caused by cannulas. They are grouped by common designs.



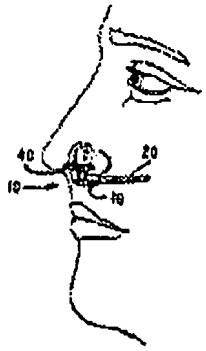
Adhesive devices

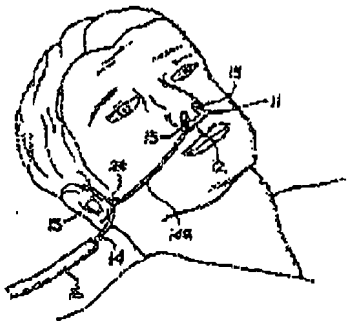
These are a few devices that hold the nosepiece in place with adhesive patches or strips



foam cushions

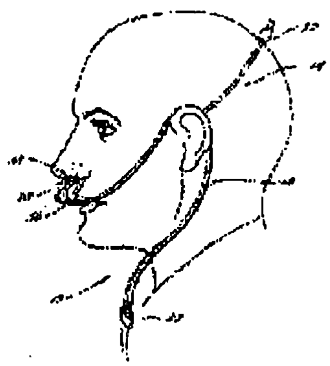
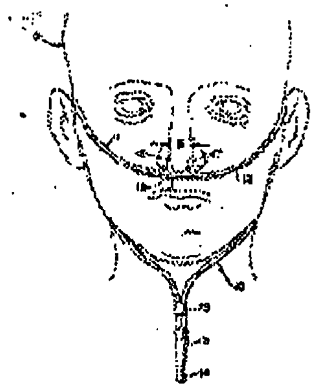
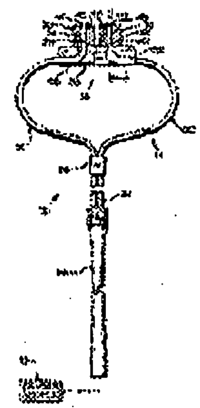
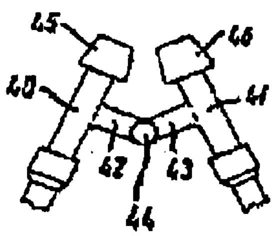
Tight tubing causes sores on the ears and nose and leaves grooves in the cheeks. These devices are all intended to cushion the force and spread it out.

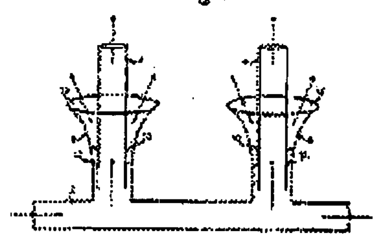
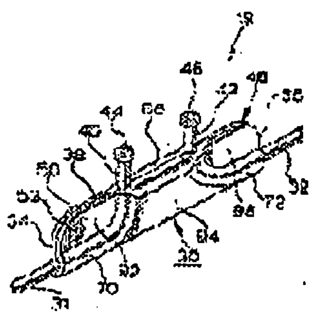
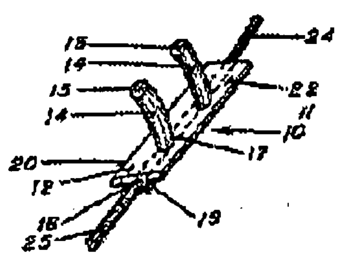




nostril clips

These support themselves by clipping between the nostrils.

The tubing is free to have any property desired and can be on only one side. These are actually a very good idea but never caught on.

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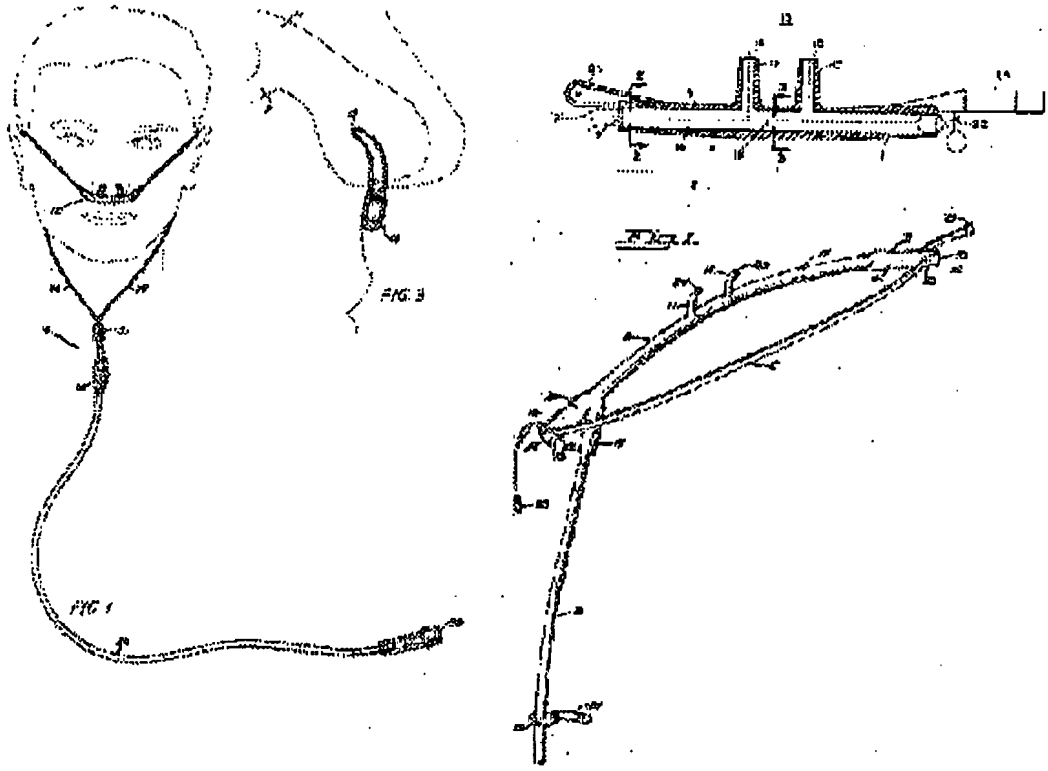
nosepiece/prong modifications

Most of these devices are intended to prevent sores inside the nose caused by dry oxygen blowing against sensitive membranes of the nasal walls. This is a problem that still exists with regular cannulas. One uses a flare shape to reduce velocity another has a plate that rests against the lip and forces the prongs to tip in the proper direction. Others are adjustable to fit each user's nose. Sometimes foam is used to center the prong in the nostril. It is important that air is allowed to enter around these devices.



bendable bodies

These are included because they are examples of cannula nosepieces that are forced to bend in a direction that keeps the prongs pointed up. The tubing must supply the tension to bend the nosepiece but it doesn't have to keep the prongs pointed properly. Therefore, they should work with very flexible tubing. There are other cannulas on the market that have nosepieces with a low center of gravity that should also work. The Salter cannula, shown in two views at the upper left was a major advance in cannula comfort. It was the first to use a dip-molded nosepiece that is soft and can be made into more shapes than injection molded cannulas. It also has a body that is tall and narrow so it bends in the thin direction. The prongs always point in the right direction relative to the bend so they are less likely to blow against the walls. However, it still happens in some people.